

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Tony ALBRECHT et al.

Serial No.: 10/580,969

Filed: February 26, 2007

For: Light-Emitting Semiconductor Component
Comprising a Protective Diode

Examiner: Ward, Eric A.

Group Art: 2891

Commissioner for Patents
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

SIR:

This is a Request for a Panel Review of Issues on Appeal. A Notice of Appeal is filed concurrently herewith in response to the final Office Action dated February 23, 2009. No amendments are being filed with this Request.

Arguments supporting the Request for Review are as follows.

ARGUMENTS

Claims 1-15 and 17-19 are pending in this application and have been finally rejected under 35 U.S.C. § 103(a) as being unpatentable over US 6,185,240 to Jiang, in view of JP 57093591 to Sawai, US 6,639,931 to Dowd, or US 5,757,836 to Jiang (Jiang 2).

The matter to be reviewed in this Request is whether the Examiner has presented a *prima facie* case of obviousness.

The Examiner's rejections of independent claims 1, 17, and 19 fail to provide a *prima facie* case of obviousness for the following reasons:

(i) Jiang does not teach the claimed "n-doped semiconductor portion" because the stack 109 in Jiang is not "provided in the protective-diode section and on a side of the area of p-doped semiconductor layers facing away from the first pn junction," as recited in independent claim 1;

(ii) Jiang does not teach the "second pn junction" as recited in independent claim 1, because the alleged second pn junction in Jiang is not formed "in the protective-diode section";

(iii) Neither of the conductive layers 123, 125 in Jiang is "the n-doped semiconductor portion," which "is electrically conductively connected to a second portion of the area of p-doped semiconductor layers in the light-emitting section" as recited in independent claim 1; and

(iv) Jiang does not teach that "the first pn junction has a larger area in the protective-diode section than the light-emitting section" as recited in independent claim 1, because the diode 105 and the orifice 122 in Jiang are not part of the first pn junction.

Legal Principle

MPEP §2143 provides examples of the basic requirements for *prima facie* obviousness. More specifically, MPEP § 2143, citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385 (2007), states that when a rejection is made combining prior art element, the Examiner must articulate (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference; and (2) a finding that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately.

(i)

The Office Action interprets Jiang's stack 109 as the "n-doped semiconductor portion" recited in independent claim 1 (see page 2 of the Office Action). Without admitting or disputing the above interpretation made in the Office Action, applicants submit that no part of Jiang's stack 109 is both "in the protective-diode section" and "on a side of the area of p-doped semiconductor layers facing away from the first pn junction," as recited in independent claim 1.

As Fig. 1 of Jiang shows, the part of stack 109 in the diode section forms and is part of the first pn junction. Therefore, such part of stack 109 is not "provided ... on a side of the area of p-doped semiconductor layers facing away from the first pn junction," as recited in independent claim 1. On the other hand, the part of stack 109 in the second pn junction of Jiang is formed outside the "protection-diode section" and thus does not meet the claim features of "an n-doped semiconductor portion provided in the protective-diode section," as recited in independent claim 1. No part of the stack 109 can be regarded as the claimed "n-doped semiconductor portion," which is both "in the protective-diode section" and "on a side of the area of p-doped semiconductor layers facing away from the first pn junction."

(ii)

The Office Action interprets Fig. 1 of Jiang to teach a second pn junction (see illustration on page 7 of the Office Action). Without admitting or disputing such interpretation made in the Office Action, applicants submit that such alleged second pn junction of Jiang is not formed "in the protective-diode section," as explicitly recited in independent claim 1. Rather, the area indicated by the Examiner as the second pn junction is isolated from light-emitting section by trench 137.

On page 5 of the Office Action, Jiang's diode 105 is interpreted as a protective-diode section (see, para. f)). As Fig. 1 of Jiang shows, the alleged second pn junction in Jiang is located outside the diode 105 defined by trench 133. Based on the above interpretation by the Office Action, Jiang does not teach a second pn junction formed "in the protective-diode section" and "electrically conductively connected to a second portion of the area of p-doped semiconductor layers in the light-emitting section," as explicitly recited in independent claim 1. Rather, the area indicated by the Office Action as the second pn junction is isolated from light-emitting section by trench 137.

(iii)

With respect to the conductive layer 123, Fig. 1 of Jiang shows that it is located outside the diode section. Therefore, the conductive layer 123 in Jiang is not "the n-doped semiconductor portion" as recited in independent claim 1, which is "in the protective-diode section" as discussed above in Section (i).

With respect to the conductive layer 125, applicants disagree with the Office Action that the conductive layer 125 in Jiang electrically connects the alleged second pn junction to the area of p-doped semiconductor layers in the light-emitting section (see, notation in the illustration on page 7

of the Office Action). As Fig. 1 of Jiang shows, the conductive layer 125 is separated from the conductive layer 123 by a dielectric layer 121 located between the areas 145, 171. Nor is there teaching that such conductive layer 125 is otherwise electrically conductively connected to the light emitting section.

Furthermore, layer 125 is adjacent to conductive portion 169 which is connected to the upper terminal of diode 105. Since layer 125 is connected to the upper terminal of diode 105 it is not "electrically conductively connected to a second portion of the area of p-doped semiconductor areas in the light emitting section," as recited in independent claim 1.

(iv)

The Office Action interprets the diode 105 and the orifice 122 in Jiang as the areas of the first pn junction in respectively the protective-diode section and the light-emitting section (see, para. j) on page 6).

Neither the diode 105 nor the orifice 122 are a part of the first pn junction in Jiang. Accordingly, the area sizes of the diode 105 and the orifice 122 are irrelevant to the above recited claim features in independent claim 1, which explicitly recites "the first pn junction has a larger area in the protective-diode section than the light-emitting section."

Moreover, the Office Action refers to widths of the trenches 131, 133 in Jiang when discussing the areas of the diode 105 and the orifice 122. *Id.* Applicants submit that such widths of the trenches 131 and 133 are irrelevant with respect to the areas of the diode 105 and the orifice 122 (which are respectively defined by the trenches 131 and 133), much less those of the first pn junction in the respective protective-diode section and light-emitting section.

In fact, according to the illustration on page 6 of the Office Action, Jiang's first pn junction diode section appears to be smaller than the first pn junction light emitting section, which is contrary to the above recited claim features in independent claim 1.

Sawai fails to teach or suggest what Jiang lacks. In view of the all above, independent claim 1 patentably distinguishes over Jiang and Sawai. Withdrawal of the 35 U.S.C. § 103(a) rejection of independent claim 1 is respectfully requested.

Independent Claims 17 and 19

Independent claims 17 and 19 recite claim features similar to those recited in independent claim 1 and are therefore allowable for the same reasons as is independent claim 1. In addition, independent claim 17 recites that “the first pn junction in the area of the protective-diode section is short circuited.”

The Office Action interprets that Jiang’s conductive portion 169 short circuits the first pn junction (see, para. j) on page 11 of the Office Action). Applicants disagree. As Fig. 1 of Jiang also shows, a dielectric layer 121 is arranged between the conductive portion 169 and exposed surfaces of the structure of the diode 105. As a result of the dielectric layer 121 in Jiang, the first pn junction in the area of the protective-diode section cannot be short circuited by the conductive portion 169. Therefore, Jiang does not anticipate independent claim 17 for at least the above reasons.

Sawai fails to teach or suggest what Jiang lacks. In view of the above, independent claims 17 and 19 patentably distinguish over Jiang, either alone or in combination with Sawai. The rejections of independent claims 17 and 19 should be withdrawn.

Conclusion

In light of the foregoing, independent claims 1, 17, and 19 and their dependent claims 2-15 and 18 each patentably distinguish over the cited art. The subject patent application is thus deemed to be in condition for allowance and notice to that effect is respectfully solicited.

Respectfully submitted,
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